

# IESNA LM79 - 2008 Test Report

Photometric testing and evaluation in accordance with LM79-2008

<b>Report prepared for:</b>	R. STAHL Schaltgeräte GmbH Nordstraße 10 99427 Weimar / Germany
<b>Report number:</b>	LM79-20180516-10694 / 02

<b>Sample tested:</b>	6002/4.28-.....-850. or 6402/4.28-.....-850. 6009/4.28-.....-850. or 6409/4.28-.....-850.
<b>Manufacturer:</b>	R. STAHL Schaltgeräte GmbH

<b>Testing performed by :</b>	ILEXA GbR Werner-von-Siemens-Straße 4a 98693 Ilmenau / Germany  Tel.: (+49) 3677 / 466 33 0 Fax: (+49) 3677 / 466 33 14 Internet: <a href="http://www.ilexa.de">www.ilexa.de</a>
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<b>Laboratory :</b>	Ilmenau University of Technology Group of Lighting Engineering Prof.-Schmidt-Str. 26 98693 Ilmenau / Germany
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## General Information

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Wladimir Jordanow  
ILEXA GbR president

## 1. Description of test sample

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### 1.1. General Informationen

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<b>Sample received:</b>	31.07.2020
<b>Manufacturer:</b>	R. STAHL Schaltgeräte GmbH Nordstraße 10 99427 Weimar / Germany
<b>Model number:</b>	6002/4 or 6402/4: Size: 2 / Diffuser: 50/50% / LED: 5000K R 3Z S / Power supply: 6045 + i-Modul  6009/4 or 6409/4: Size: 2 / Diffuser: 50/50% / LED: 5000K S 3Z T / Power supply: 6045 + i-Modul
<b>Model type:</b>	Luminaire
<b>Length / Width / Height:</b>	6002/4 or 6402/4: 700mm / 185mm / 125mm 6009/4 or 6409/4: 860mm / 185mm / 125mm

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### 1.2. Manufacturer specifications

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<b>Voltage [V]:</b>	230.0 AC
<b>Current [A]:</b>	-/-
<b>Frequency [Hz]:</b>	50.0

### 1.3. Pictures

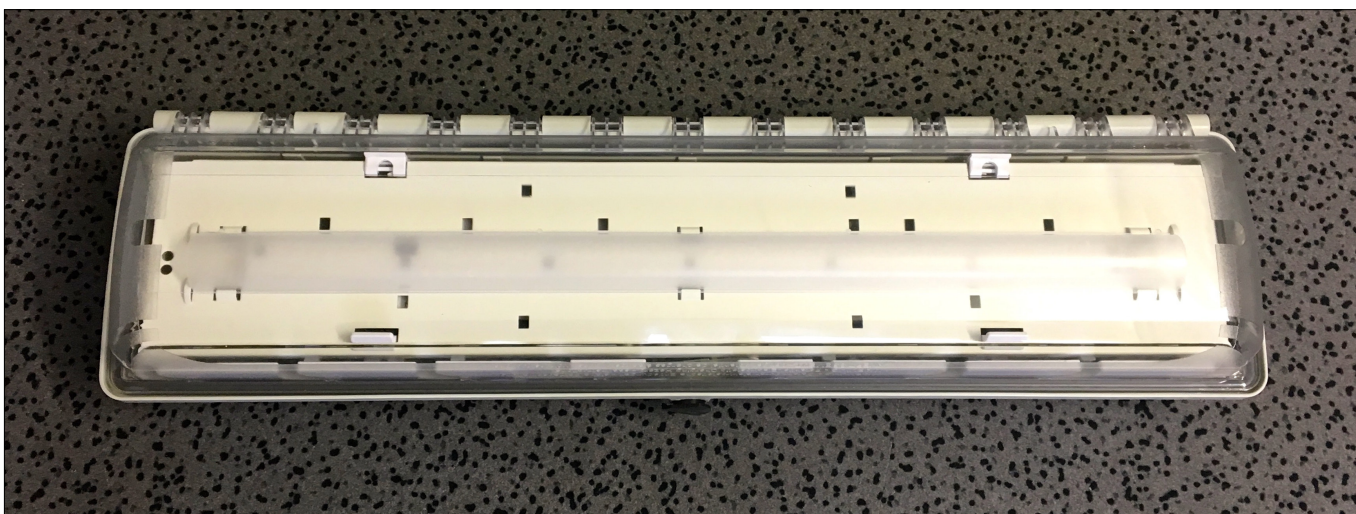


Figure 1: Luminaire (picture similar) of 6002/4 or 6402/4

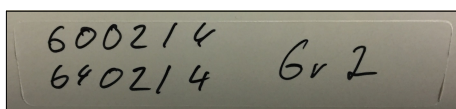


Figure 2: Luminaire ID of 6002/4 or 6402/4



Figure 3: LED source label of 6002/4 or 6402/4



Figure 4: Luminaire (picture similar) of 6009/4 or 6409/4

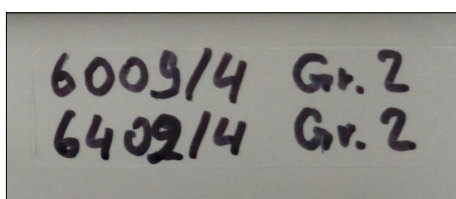


Figure 5: Luminaire ID of 6009/4 or 6409/4

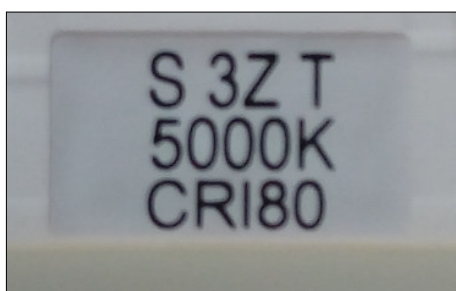


Figure 6: LED source label of 6009/4 or 6409/4

## 2. Scope of testing

Photometric and electrical testing in accordance with IESNA LM 79-2008 IES (Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products). All measurements are made using the goniophotometer / spectroradiometer test method.

The spectral values are measured at a given direction with vertical angle  $\theta = 0^\circ$ .

**Date of test:** 12.08.2020  
**Report and test prepared by:** Kranhold / ILEXA GbR

## 3. Equipment

Testing is performed in accordance with the procedures outlined in IESNA LM79-2008. The sample is evaluated for photometric and electrical characteristics using a goniophotometer, located in an temperature - controlled, draft free photometric laboratory.

Item	Manufacturer	Model	Calibration due
Goniophotometer	TechnoTeam	RiGo801	yearly
Spectroradiometer	Jeti	specbos 1211	yearly
Power Supply	Statron AG	BE2/01H-IP-R20-B	N/A
Digital Power Meter	Yokogawa	WT110	N/A

**Table 3.1: Test Instrumentation**

## 4. Additional information

(none)

## 5. Test Results

The results were obtained after stabilization of the sample in accordance with the requirements set forth in section 5.0 of IES LM79-2008.

	6002/4 6402/4		6009/4 6409/4	
	Gonio- photo- meter	Spectro- radio- meter	Gonio- photo- meter	Spectro- radio- meter
Total luminous flux [lm]	2937.5	-	3100.8	-
Luminous efficacy [lm/W]	134.7	-	125.9	-
Correlated color temperature (CCT) [K]	-	4942	-	4942
Color rendering index (CRI - R <sub>a</sub> )	-	83.3	-	83.3
Chromaticity (x / y)	-	0.3473 / 0.3574	-	0.3473 / 0.3574

**Table 5.1: Photometric results**

	6002/4 6402/4	6009/4 6409/4
Input power [W]	21.8	24.6
Input voltage [V]	230.1 AC	230.1 AC
Input current [A]	0.1096	0.1220
Input frequency [Hz]	50.0	50.0

**Table 5.2: Electrical results**

Orientation (burning position) during test	horizontal
Prior operation time [minutes]	>180
Stabilization time [minutes]	30
Total operating time [minutes]	>180
Ambient temperature [°C]	24.5

**Table 5.3: Additional Parameters**

## 6. Results goniophotometer

### 6.1. Illuminance plots

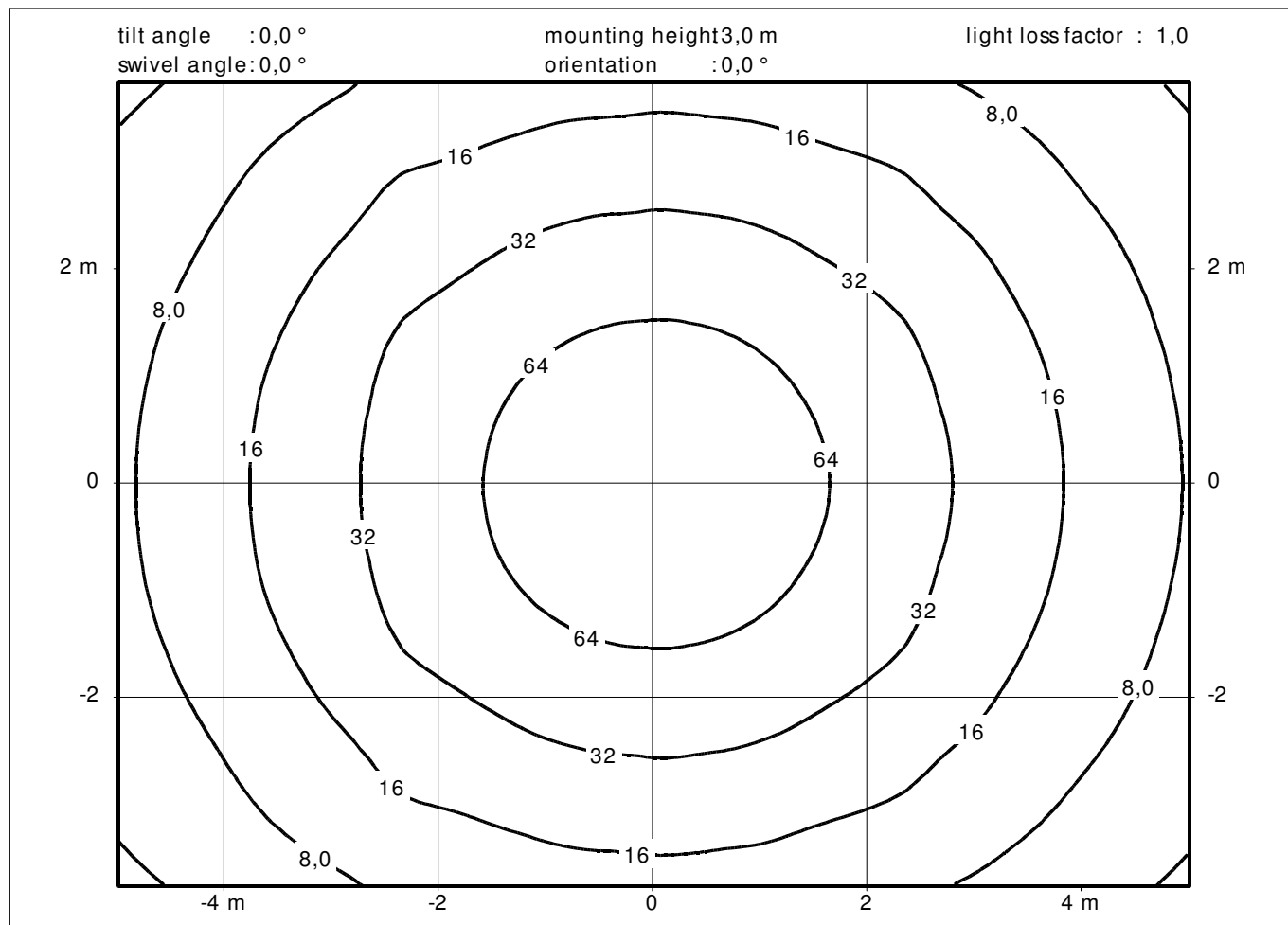


Figure 7: Isolux diagram (mounting height 3m) of 6002/4 or 6402/4



## 6.2. Candela plots

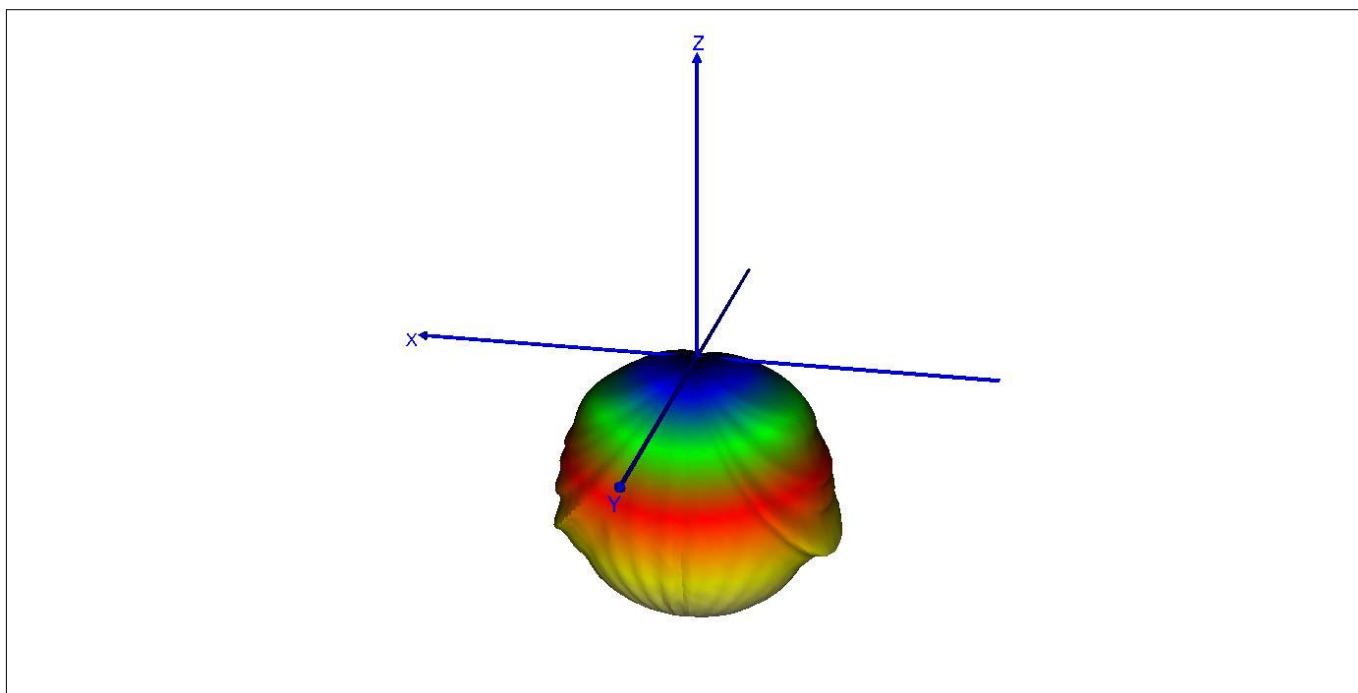


Figure 8: 3D - luminous intensity distribution

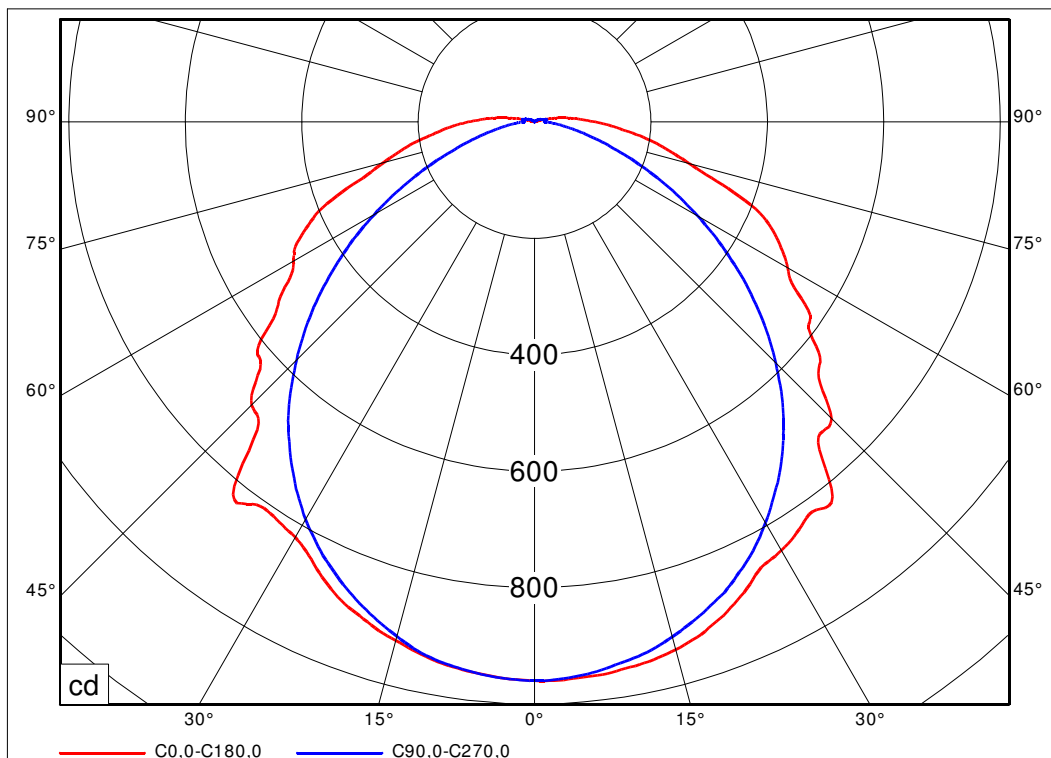


Figure 9: Polar candela distribution of 6002/4 or 6402/4

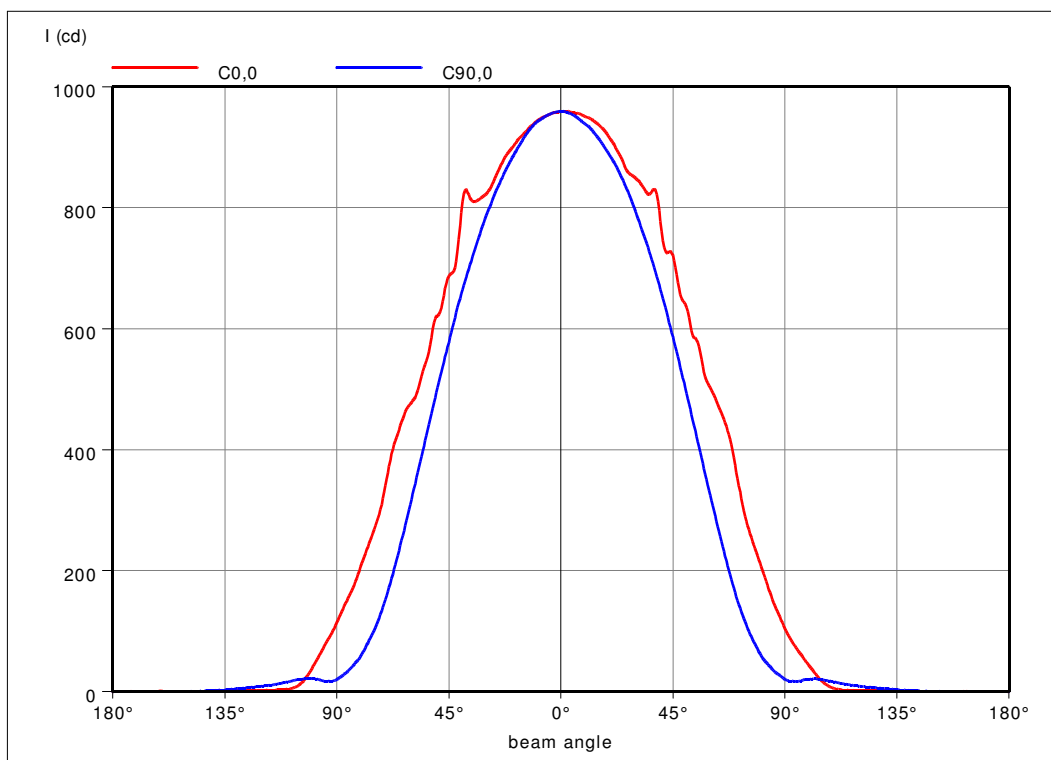


Figure 10: Cartesian candela distribution of 6002/4 or 6402/4

## 7. Results spectroradiometer

### 7.1. *Relative spectral distribution*

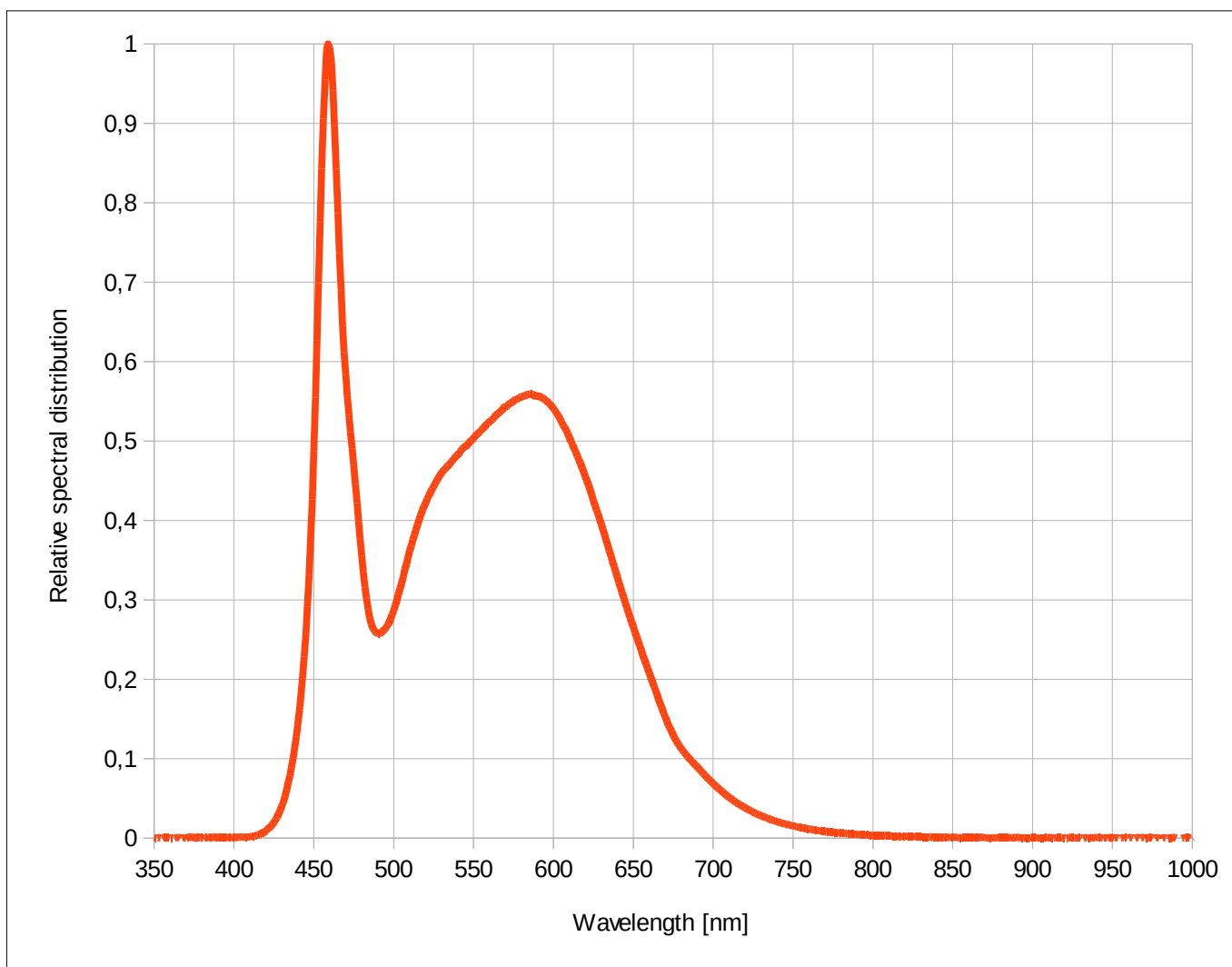


Figure 11: Relative spectral distribution

## 7.2. Chromaticity diagram

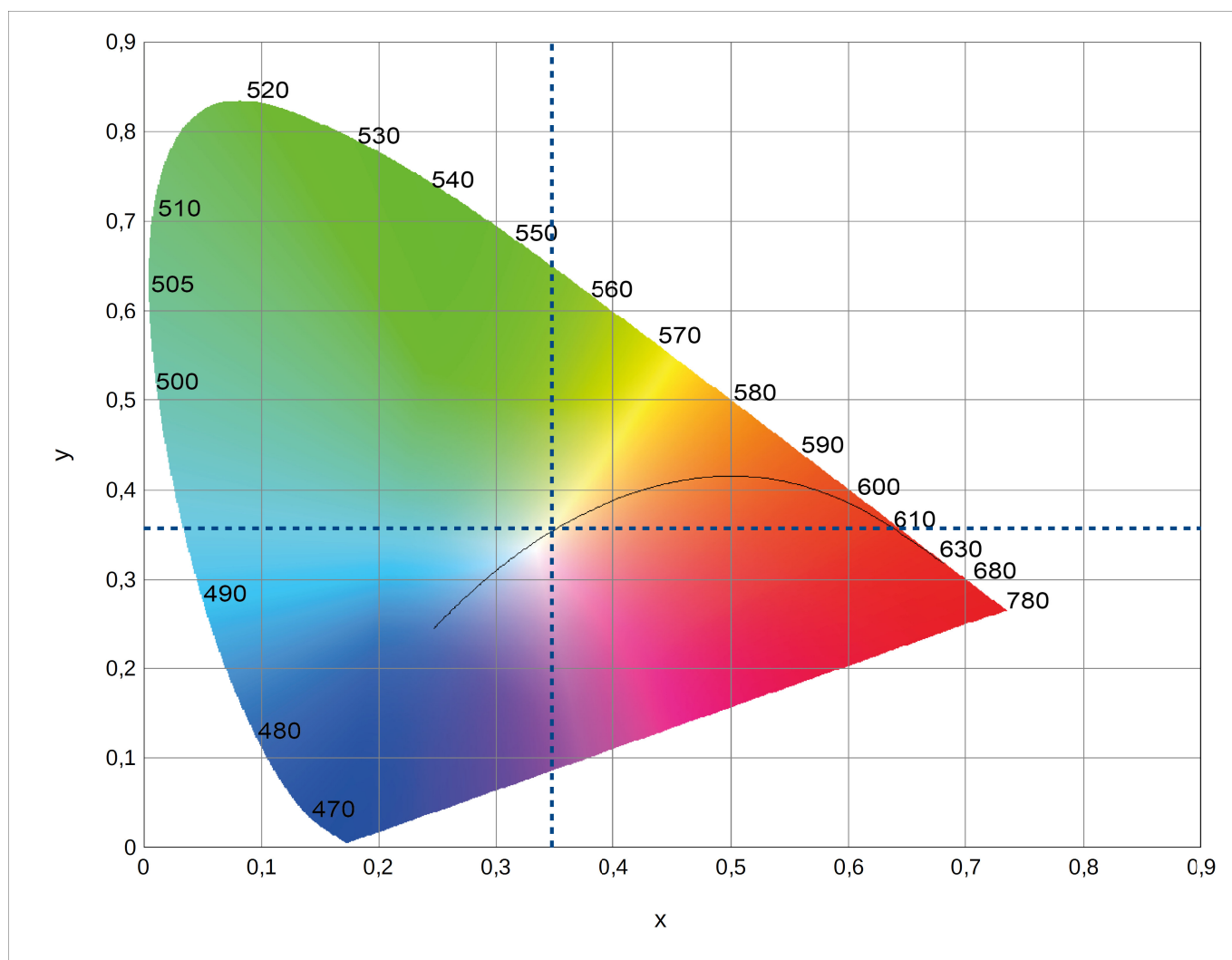


Figure 12: Chromaticity diagram

Tristimulus Value	
x	0.3473
y	0.3574

Table 7.1: Chromaticity coordinates

The location of the tristimulus coordinates is indicated by the blue cross on the diagram.

### 7.3. Color calculation

color sample	CRI	color sample	CRI
R1	83.4	R9	15.5
R2	94.6	R10	83.9
R3	94.2	R11	74.2
R4	75.4	R12	53.5
R5	80.8	R13	87.5
R6	88.7	R14	97.7
R7	83.2	R15	77.6
R8	66.1		
<b>Ra</b>	<b>83.3</b>	<b>CCT</b>	<b>4942 K</b>

Table 7.2: Color calculation – CRI R1-R15, R<sub>a</sub> and correlated color temperature